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THE FRESH-WATER, BRACKISH, AND NON-JAMAICAN LAND MOLLUSKS DESCRIBED BY C. B. ADAMS

By RICHARD I. JOHNSON AND KENNETH J. BOSS

This paper includes all of the original descriptions with illustrations of the available types of molluscan taxa introduced by C. B. Adams exclusive of Western Atlantic marine mollusks (Clench and Turner, 1950), Eastern Pacific marine mollusks (Turner, 1966), and Jamaican land mollusks (in preparation). This work includes all the remaining taxa described by Adams from Ohio, New England, Jamaica, the Hawaiian Islands and an unidentified Pacific Island. Hence, the cumbersome but inclusive title.

Clench and Turner (1950) included a biography and a complete bibliography of the papers Adams wrote on mollusks. The present study includes 46 taxa for which types should exist. It was possible to locate type material for all but three of these: *Limnea acuminata*, *Planorbis humilis*, and *Aneylus obliquus*.

If the taxon were based on a single specimen, or if the measured specimen were available, it was regarded as the holotype. In other instances a lectotype was chosen. All of the original descriptions are reproduced, and the available types are illustrated by enlarged photographs.

REFERENCES

- CLENCH, W. J. AND R. D. TURNER. 1950. The Western Atlantic marine mollusks described by C. B. Adams. *Occ. Papers on Moll.* 1(15): 233-403, pls. 29-49.

TURNER, R. D. 1956. The Eastern Pacific marine mollusks described by C. B. Adams. *Occ. Papers on Moll.* 2(20): 21-136, pls. 5-21.

ACKNOWLEDGMENTS

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Original descriptions, with illustrations, of the fresh-water, brackish, and non-Jamaican land mollusks described by C. B. Adams.

For ease of reference the taxa are arranged alphabetically by species. The earliest reference is given. Some of the taxa were also described in subsequent publications, but unless additional data were included, they are not referred to. Following the references, are brief type localities, and the original descriptions. New data, additional locality data from original labels or modern atlases are included on the plate captions. Also included on the captions are type selections, their measurements, and other pertinent data.

The following abbreviations are used:

MCZ — Museum of Comparative Zoology, Cambridge, Massachusetts.

dia — diameter

ht — height

w — width

acuminata Adams *Limnea* [sic] Type lost

1840, *Amer. Jour. Sci.* 39(2): 347.

Non Lamarck 1822. Is *Pseudosuccinea columella* (Say), *teste* Baker, F. C., 1911, *Chicago Acad. Sci., Special Pub.* no. 3: 163.

New Bedford, Massachusetts

LIMNEA ACUMINATA. L. testâ fragili, semitransparente, ovatâ, striis transversis irregularibus revólventibus creberrimis parallelis; anfractibus quatuor; spirâ perbrevis, subacutâ; anfractu ultimo maximo; aperturâ amplissima, spiræ interiorem ostendente; columella tenui subreflexâ; labio haud appresso. Habitat New Bedford.

REMARKS. This differs from the *L. columella*, Say, in the much greater proportional size of the last whorl, the

breadth of the shell and the presence of very distinct revolving lines. It resembles the *Succinea obliqua*, Say, but the spire is rather less, and no revolving lines are mentioned in the description of that species. The *L. acuminata* has also been found at Horn pond, in Woburn, Mass., by T. J. Whittemore, Esq.

affinis *Adams Planorbis*

Plate 36, fig. 1

1849, Cont. to Conch. no. 3: 44.
Jamaica.

PLANORBIS AFFINIS. Shell discoidal; horn color; with coarse striæ of growth; spire wide and moderately concave on both sides; apex very deeply depressed into a minute pit and invisible on the right side, conspicuous on the left side; whorls about five and one-third, convex with a deep suture on the right side, on the left side angular, with the suture at first on the angle for nearly three whorls and then descending into an acute angular channel; last whorl rather large, moderately turned to the left; aperture semioval; labrum moderately advanced on the right side. This shell is very similar to *P. lentus* Say, of which it may possibly be a variety. Its altitude is less, and the right side is more uniformly concave. Perhaps this is a case of specific identity with plural origin.

Greatest breadth .68 inch; breadth .535 inch; height of last whorl .21 inch.

Var. *a*; brownish red, with coarser striæ of growth, the outer whorl more sharply angulated, and higher.

Greatest breadth .57 inch; least breadth .455 inch; height of last whorl .22 inch.

albilabris *Adams Pupa*

1841, Amer. Jour. Sci. 40: 271.

New name for *Cyclostoma marginata* Say 1821, non Fischer 1807
Crown Point, New York

badia *Adams Pupa*

Plate 41, fig. 1

1840, Boston Jour. Nat. Hist. (33): 331-332, pl. 3, fig. 18.

Crown Point, New York

P. testâ parvâ, rubro-fuscâ, cylindraceâ; apice perobtusâ; anfractibus septem, convexis, aperturâ orbiculari, unidentatâ; ancontracto, subreflexo.

Shell small, reddish brown, cylindrical, very obtusely tapering in the two upper whorls; *whorls* seven, moderately convex, with a well impressed suture; *aperture* orbicular, its plane nearly parallel with the axis of the shell, less than one-third of the length of the shell, with the margin slightly reflected, and the sub-margin contracted, with a single rather small tooth on the penultimate whorl; *umbilicus* moderate.

Length, .14 inch; breadth, .07 inch; diameter of the aperture, .045 inch.

Cabinet of the Bost. Soc. Nat. Hist.

Habitat. This species may not improperly be reckoned among the shells of New England, having been found within half a mile of the Vermont line. It was discovered at Crown Point, N. Y., by Prof. George W. Benedict, of the University of Vermont.

REMARKS. This species is readily distinguished by its dark mahogany color. The only native species, which, to my knowledge, resembles this in form, is *P. armifera*, Say, which, however, is white, and has numerous teeth.

columellaris *Adams Linnea* [sic]

1839, Amer. Jour. Sci. 36: 392.

Nomen nudum.

coronatus *Adams Melampus*

Plate 41, fig. 5

1849, Cont. to Conch. no. 3: 41.

Jamaica.

MELAMPUS CORONATUS. Shell obconic; reddish purple; with several spiral punctate striæ and distant transverse striæ, and a deciduous epidermis, which is produced into a small spine at each of the principal transverse striæ on the spire; spire rather short, with outlines slightly concave; apex very acute; whorls about seven, slightly shouldered, with a moderately impressed suture; aperture with a large solid spiral prominent callus or tooth

on the columella. The two specimens before me may be young shells, but probably belong to a new species.

Length .11 inch; breadth .07 inch.

decepta *Adams Achatinella*

Plate 42, fig. 9

1851, Cont. to Conch. no. 8: 127-128.

Hawaiian Islands.

ACHATINELLA DECEPTA. Shell rather thick, ovate-conic, much elongated: dingy white or very pale yellowish brown; with a dark brown or greenish epidermis, which is interrupted more or less in transverse stripes, and often terminates abruptly on the periphery of the last whorl: with irregular transverse striae; without spiral striae: apex subacute: spire long, with the outlines moderately curvilinear: whorls nearly seven and one-half, rather convex, with a well impressed suture; last whorl rather small: aperture small, ovate; lip sharp, not expanded, moderately thickened within; columellar fold moderately developed.

Mean divergence 38° ; length .72 inch; breadth .33 inch; length of aperture .25 inch.

This shell is figured by Mr. Reeve (Icon. f. 42 *a*, non 42 *b*) as a variety of *A. rubens* Gould. We think it is entitled to specific rank. It is usually more slender, and always more conical and less ovate, the last whorl being shorter, and not so regularly rounded, and the outlines of the spire being much less curvilinear. *A. rubens*, always retaining its more regularly rounded outlines, varies in its proportions in extreme varieties from .76 inch: .35 inch to .64 inch: .4 inch. The dimensions of Dr. Gould's type, .75 inch: .4 inch, are most common.

decepiens *Adams Planorbis*

Plate 36, fig. 4

1849, Cont. to Conch. no. 3: 43.

Jamaica.

PLANORBIS DECEPIENS. Shell discoidal; pale horn color; with fine striae of growth and finer microscopic spiral striae; spire wide, a little concave on both sides; apex moderately depressed, more so on the right side; whorls

five, rather convex on the right side, subangular on the left, with a well impressed suture; last whorl not large, with the subangular periphery nearer to the right side; aperture semioval; much advanced at the right extremity. This species resembles *P. pallidus* Ad., which has a less number of whorls, of which the last is much wider; that shell is also higher.

Greatest breadth .365 inch; least breadth .32 inch; height of the last whorl .09.

decollata *Mighels and Adams* *Limnaea* Plate 38, fig. 5

1842, Boston Jour. Nat. Hist. 4(1): 45, pl. 4, figs. 13, 13, a, b, c.

Unity, Maine

L. testâ ventricosâ; anfractibus duobus vel tribus, ultimo magno; spirâ breviuscula, plerumque decollatâ; suturâ impressa; aperturâ maximâ, sub-campanulatâ; labro porrecto; columellâ validè plicata.

Shell very ventricose, rather thick, sub-ovate, or sub-rotund, in outline an irregular rhomboid; epidermis of an olivaceous green color, rather thin, deciduous; whorls two to three; spire very short, generally decollated; whole surface generally rather rough; striæ of growth coarse and fine alternately; transverse striæ on the body whorl sparse, interrupted, sometimes obsolete; body whorl composes almost the whole shell; aperture very large, sub-campanulate; its length is very little greater than the breadth, and occupies more than two-thirds the length of the shell; labrum rather thin, simple; fold of the columella very prominent.

Length, .6 inch; breadth, .5 inch; height, .4 inch.

Animal dingy mouse-color, with a slight tinge of purple, covered with numerous, microscopic, elongated, white spots, on every visible part of the surface, including the mouth and tentacula; foot of a chocolate-color, rather broad, length rather greater than the aperture; habits sluggish.

Cabinets of Bost. Soc. Nat. Hist., Dr. Gould, S. S. Halde-
man, J. G. Anthony, J. W. Mighels, and C. B. Adams.

Habitat. Unity, Me., discovered by Dr. Milliken of that town, to whom we are indebted for specimens.

REMARKS. This odd, but interesting shell, is easily recognized by its rhomboidal aspect, wide aperture, decolored spire and rather rough and distorted appearance. It is allied to *L. catascopium*, Say, but is distinct from that shell by having less whorls by two, and a much shorter spire; by being wider, and its divergence greater by more than thirty degrees. By some it has been supposed to be identical with *L. emarginata*, Say. This is impossible. *L. emarginata* is much more cylindrical, the divergence of its spire is scarcely half as great as that of our shell, it is much thinner, and has at least two more volutions. Our shell is also destitute of the "deep emargination" which distinguishes *L. emarginata*.

dentiferus Adams Planorbis Plate 37, fig. 3
1845, Proc. Boston Soc. Nat. Hist. 2: 17.
Jamaica.

PLANORBIS DENTIFERUS. *P. dentato*, Gould, affinis; t. anf. 4, ultimo quam penultimo, haud multo latiore; sed *P. dentatus* ultimum maximum habet, (v. fig. Gouldianam); dentium labialium dextrâ bifidâ, magnâ; dentibus sicut in specie Gouldianâ dispositis.

dentiferus edentatus Adams Planorbis Plate 38, fig. 1
1851, Cont. to Conch. no. 8: 132.
Jamaica.

Of *Planorbis dentiferus Ad.*, (Proc. Bost. Soc. Jan. 1, 1845,) a variety occurs, which is destitute of teeth! After a careful examination of many specimens, I am unable to find any other differences constantly associated with this peculiarity. Many of the toothless shells are more compressed obliquely just below the periphery, than the type, but the same is true of some of the shells in which the teeth are well developed. It is not a *local* variety, both kinds occurring together at Hatfield, in Westmoreland. The variety may be designated by the name EDENTATUS.

diminuta Adams Partula Plate 40, fig. 6
1851, Cont. to Conch. no. 8: 125.
Hab. (?)

PARTULA DIMINUTA. Shell rather thick, ovate-conic; translucent, horn-colored, sometimes reddish, with a thin shining brownish horn-colored epidermis, which is much interrupted by transverse stripes; with the tip white; with unequal, irregular, rather coarse transverse striae, and numerous excessively minute impressed spiral lines; apex subacute; spire rather short, with the outlines slightly curvilinear; whorls five, a little convex, with a moderately impressed suture; last whorl moderately oblique: aperture rather small, subovate, with a tubercle on the middle of the intruding part of the last whorl: lip much thickened, but narrow, with a regularly rounded surface: umbilicus small.

Mean divergence 58° ; length .63 inch; greatest breadth .36 inch; least breadth .3 inch; length of the aperture .23 inch: the corresponding dimensions of another specimen are 60° ; .525 inch; .28 inch; .32 inch; .21 inch.

Hab. —?

This species resembles a variety, (*P. auriculata* Brod.,) or *P. Otaheitana* Brug., but is more slender, as well as smaller.

dimondi Adams *Achatinella*

Plate 42, fig. 6

1851, Cont. to Conch. no. 8: 126-127.

Hawaiian Islands.

ACHATINELLA DIMONDI. Shell reversed, thick, long ovateconic: dingy white or very pale yellowish brown, with a blackish margin to the aperture when mature; with a greenish black fugacious epidermis: with the transverse striae rather slight, very unequal and irregular, without spiral striae: apex subacute: spire rather long, with the outlines moderately curvilinear: whorls nearly seven, quite convex, with the suture well impressed, last whorl often somewhat flattened on the middle: aperture subovate, with the columellar fold well developed, with the deposit on the inner side very thin; labrum sharp, not reflected, well thickened within.

Mean divergence 45° ; length 1 inch; breadth .5 inch; length of aperture .38 inch.

dimondi lata *Adams Achatinella* Plate 42, fig. 7

1851, Cont. to Conch. no. 8: 127.

Hawaiian Islands.

Variety (?) *lata* has a divergence, in a specimen about two-thirds grown, of 55°.

Habitat, Sandwich Islands.

This fine species is named in honor of Mr. Henry Diamond, of Honolulu, to whom I have been much indebted for the shells of these islands.

dubiosa *Adams Achatinella tappaniana* Plate 40, fig. 5See under: **tappaniana dubiosa** *Adams Achatinella***edentatus** *Adams Planorbis dentiferus* Plate 38, fig. 1See under: **dentiferus edentatus** *Adams Planorbis***elegans** *Adams Cyclas* Plate 40, fig. 3

1840, Boston Jour. Nat. Hist. 3(3): 330-331, pl. 3, fig. 11.

Weybridge, Vermont.

C. testâ bizonatâ, subglobosâ, rhombico-orbiculari, equilaterali, eleganter et tenuissimè striatâ; natibus haud prominentibus; umbonibus tenuibus; intûs albido-cærulescente.

Shell sub-globular, rhombic-orbicular, equilateral, finely and elegantly striated, with a horny green *epidermis*, with a straw-colored marginal zone, of variable width, and another of the same color, and usually much narrower, and about equidistant between the margin and the beak, but varying somewhat in position; *beaks* not prominent, slightly undulate, central, not decorticate; *umbones* very thin; *within* bluish white; lateral *teeth* strongly developed, cardinal teeth rudimentary. The young shell has only a marginal zone, and is less inflated.

Length, .43 inch; height, .36 inch; width, .26 inch.

Habitat and station. This species was discovered by Mr. Kinne Prescott, in a swamp, in Weybridge, Vt. This swamp nearly surrounds an old Indian encampment, and is impassable. A considerable number of specimens were obtained with some difficulty and hazard. The species has been found at Burlington, Vt.

Cabinets of Bost. Soc. Nat. Hist.; of Middlebury College; of Dr. A. A. Gould; of Messrs. Kinne Prescott and Luther H. Sheldon, of Andover; and my own.

REMARKS. This shell is remarkable for its fine polish and for its inflation, which continues far over the disk of the shell, and terminates very abruptly, near the margin. The circumference very nearly represents that of the *C. calyculata*, Drap., except that it is less curved below. That shell, however, is flattish, and has prominent beaks. *C. rhomboida*, Say, approaches in form to this species, but is much less inflated between the umbo and margin, has very coarse striæ, and is destitute of the paler zones, which in this shell appear to be a constant character.

elevatus Adams Planorbis

Plate 37, fig. 1

1840, Boston Jour. Nat. Hist. 3(3): 327-328, pl. 3, fig. 16.

South Boston, Massachusetts.

P. testâ parvâ, pallidâ, supra elevatâ, infrâ altè umbilicatâ; anfractibus quatuor; suturâ valdè impressâ; aperturâ subrotundatâ; labro suprâ prominente.

Shell horn color, finely striate; *whorls* four, as high as wide; last whorl well rounded, very indistinctly carinate below; *inclination* to the left about 48° ; *right side* convex, flattened at the apex; *left side* very deeply concave; *suture* deeply impressed; *aperture* round-ovate, large, with its upper extending much beyond its lower margin.

Greatest breadth, .17 inch; least breadth, .13 inch; height, .06 inch.

Cabinets of Bost. Soc. Nat. Hist.; of Middlebury College; of S. S. Haldeman, of Marietta, Pa.; of J. G. Anthony, of Cincinnati; and my own.

Habitat. This species was discovered in the summer of 1838, in a small spring in a rocky cavity, in South Boston. Nearly a hundred specimens were obtained, and a much larger number were left. Visiting the same spot a few days since, (July, 1840,) I found the spring filled up with stones to the top of the water, and not a shell to be seen. Last summer I obtained a specimen in Lake George, N. Y. Dr. Wm. Prescott has found the species in Lynn.

REMARKS. This species much resembles *P. parvus*, Say, and for some time I doubted whether it were distinct. But the specimens uniformly differ from that shell in having the spire elevated above the plane of the last whorl, whereas in that species it is concave, and consequently this species is much more deeply umbilicated on the left side; also, that species is distinctly carinate on the middle of the last whorl, but is very indistinctly carinate below the middle, if at all.

fragilis *Mighels and Adams* *Physa* Plate 38, fig. 6

1842, Boston Jour. Nat. Hist. 4(1): 44, pl. 4, fig. 12.

Monmouth, Maine.

P. testâ tenuissimâ, obliquè ovatâ; spirâ brevi; anfractibus quatuor; aperturâ subovata, repandâ; labio tumido, laminâ obtecto.

Shell very thin and fragile, translucent, horn-color, obliquely ovate; whorls four; last whorl campanulate; suture deeply impressed at the enlargement of the last whorl; spire usually less than one, sometimes only one-fourth part of the length of the shell; labrum very thin, advanced; labium tumid with a thin, loosely adherent lamina.

Length, .55 inch; greatest breadth, .4 inch; divergence, 90 degrees.

Animal of a very obscure, light green color; whole surface of the body covered with oblong dark spots; foot *shorter* than the shell, lanceolate; tentacles nearly white, rather long, very slender; mouth blood-red. Its motions are exceedingly rapid; very timid, withdrawing itself on the least alarm. It is very tenacious of life, at least it is not easily *starved*. Three specimens are now before us in a tumbler of water, November 10th, where they have remained since the first of July. The water has not been changed more than half a dozen times, yet they are as brisk as when first taken; and, moreover, they have *grown* at least one quarter; exuviae white, abundant, vermicular.

Cabinets of Bost. Soc. Nat. Hist., Amherst and Middlebury Colleges, Mons. Largillier, S. S. Haldeman, J. W. Mighels, and C. B. Adams.

Habitat. Monmouth, Maine; discovered in a mill-pond after the water was drawn off, by Mr. N. T. True, to whom we are indebted for specimens.

REMARKS. This species is distinguished from *P. heteróstropha* by the campanulate aperture, which is constant, shorter spire, tumid labium, and by its remarkable tenuity.

fuscus Adams *Ancylus*

Plate 39, fig. 3

1840, Boston Jour. Nat. Hist. 3(3): 329-330, pl. 3, fig. 17.

Andover, Massachusetts.

A. testâ tenui, sub epidermide pellucidâ, subdepressâ, ellipticâ; epidermide fuscâ, crassâ, asperâ, extra marginem prominente; apice obtusâ, ad dextram, vix posterâ.

Shell thin, transparent without the epidermis, not much elevated, elliptical, moderately curved at the sides; *epidermis* brown, visible through the shell, giving it the appearance of having the same color, thick, rough, slightly extending beyond the margin of the shell; *apex* obtuse, moderately prominent, scarcely behind the middle, inclining to the right, so as to have only two-fifths of the width on that side.

Length, .31 inch; width, .22 inch; height, .05 inch.

Cabinets of Bost. Soc. Nat. Hist.; of Mr. Kinne Prescott, of Andover; and my own.

Habitat and station. This species was found adhering to stones, in a small rivulet, at Andover, by Mr. Kinne Prescott, to whom I am indebted for many interesting species of shells. It has also been found at Mansfield.

REMARKS. This species is easily distinguished by its epidermis. The *A. rivularis*, Say, differs also in being much more narrow, having its sides straight, and its apex more acute, and *A. tardus*,* Say, is more elevated, and in both of these the apex does not incline so far to the right as in our species. The *A. lacustris*, Drap., is more narrow, with an apex more elevated and acute, and *A. fluviatilis*, Drap., has the apex more prominent and nearer one extremity.

*This species, hitherto unknown in New England, occurs quite plentifully in a rivulet in Middlebury, Vt.

haldemani *Adams Planorbis*

Plate 37, fig. 2

1849, Cont. to Conch. no. 3: 43.

Jamaica.

PLANORBIS HALDEMANI. Shell subdiscoidal; brownish horn color; with very fine striae of growth, and several spiral series of microscopic punctures; spire very narrow; apex deeply sunk on both sides; whorls five, rather convex, more convex on the right side, with a well impressed suture margined on the right side; last whorl very wide on both sides and high, with a slightly angular periphery on the left side; aperture lunate, with the labrum most advanced at one third of its length from the right extremity.

Greatest breadth .14 inch; least breadth .125 inch; height of last whorl .07 inch.

hirsutus *Adams Planorbis*

1839, Amer. Jour. Sci. 36: 392.

*Nomen nudum.***humilis** *Adams Planorbis*

Type lost

1851, Cont. to Conch. no. 8: 131.

Jamaica.

PLANORBIS HUMILIS. Shell subdiscoidal: color —? with coarse striae of growth: apex and spire moderately depressed on the right side: whorls two and one-half; last whorl with a very acute periphery nearly in the plane of the spire, moderately dilated around the umbilical region: aperture large, subtriangular, acutely angled at the periphery of the last whorl: umbilical region abruptly excavated, with the concavity about two-thirds as wide as the last whorl.

Greatest breadth .06 inch; least breadth .045 inch; height .025 inch.

inconspicua *Adams Valvata*

Plate 41, fig. 7

1851, Cont. to Conch. no. 8: 131-132.

Jamaica.

VALVATA INCONSPICUA. Shell subdiscoidal: pale horn

color? with the striae of growth microscopic: spire convex, moderately elevated: whorls three, very rapidly increasing, with a deep canaliculate suture: aperture large, not much advanced above: umbilicus about half as wide as the penult whorl.

Greatest breadth .07 inch; least breadth .05 inch; height .04 inch.

Probably the specimens before me are immature, but the species is quite distinct from any other.

jamaicensis Adams *Neritina*

Plate 42, fig. 2

1851, Cont. to Conch. no. 9: 175.

Jamaica.

NERITINA JAMAICENSIS. Shell obliquely ellipsoidal, rather thin: white near the apex: otherwise covered with violet, which is sometimes tinged with dark gray, with lighter and darker shades in spiral bands, and is more or less interrupted by lines of growth and irregular white spots: surface smooth and shining: apex rather prominent: spire convex: whorls nearly three, with a fine but well impressed sutural line: labium smooth, moderately thickened.

Length of spire .07 inch; height .3 inch; breadth .32 inch.

jamaicensis Adams *Paludina*

Plate 41, fig. 3

1849, Cont. to Conch. no. 3: 42.

Jamaica.

PALUDINA JAMAICENSIS. Shell ovate-conic; translucent or subtransparent; green, sometimes with a tinge of brown; very smooth; spire with the outlines nearly rectilinear; apex acute, persistent; whorls six, quite convex, very regularly rounded; aperture ovate, acute above; with an umbilical groove between the left side of the lip and the last whorl.

Mean divergence about 60° ; length .15 inch; greatest breadth .1 inch; least breadth .08 inch.

jamaicensis Adams *Physa*

Plate 38, fig. 4

1851, Cont. to Conch. no. 9: 174.

Jamaica.

PHYSA JAMAICENSIS. Shell long ovate, acuminate: brownish horn color: with microscopic striæ of growth, and some lightly impressed microscopic spiral striæ: apex acute: spire well lengthened, with the outlines slightly curvilinear, with a well impressed suture: aperture long ovate: lip thin.

Length of aperture .32 inch; total length .48 inch; breadth .25 inch.

This species was found plentifully in a tank at Malvern, more than 1000 feet high, in the isolated group of the St. Cruz Mountains in St. Elizabeth. The structure of the country for many miles in every direction is such that no water is ever seen standing on the surface. Through innumerable subterranean fissures rain immediately percolates to unseen depths. Artificial tanks are therefore the only places where fresh water shells can exist in this region. We are quite ignorant of the manner in which this species was introduced to its habitat.

lata Adams Achatinella dimondi Plate 42, fig. 7
See under: **dimondi lata Adams Achatinella.**

macnabianus Adams Planorbis Plate 36, fig. 2

1849, Cont. to Conch. no. 3: 43.

Jamaica.

PLANORBIS MACNABIANUS. Shell discoidal and excessively flattened, like *P. vortex*; brownish horn color; with microscopic crowded transverse striæ of growth; spire a little more concave on the right than on the left side; apex conspicuous on both sides; whorls six, with a well impressed suture on both sides, planulate on the left side and a little convex on the right side; last whorl with an angular periphery in the plane of the left side; aperture very oblique, the right half of the labrum being advanced very far and abruptly beyond the left half, especially in old shells, in which the advance is equal to twice the diameter of the aperture.

Greatest breadth .27 inch; least breadth .25 inch; height of the last whorl .04 inch.

magna Adams *Achatinella*

Plate 42, fig. 10

1851, Cont. to Conch. no. 8: 125-126.

Hawaiian Islands.

ACHATINELLA MAGNA. Shell thick, ovate-conic, elongate: blackish brown at the apex, reddish brown on the middle whorls, and ash-colored on the lower whorls: with unequal, irregular, very coarse transverse striae, with close-set transverse arcuate ribs near the apex, and some indistinct raised spiral lines on the lower part of the last whorl: apex subacute: spire rather long, with the outlines quite curvilinear: whorls seven, rather convex, with a well-impressed suture; last whorl obtusely angular: aperture ovate, acute above, with an extremely thick deposit on the inner side, with a very large compressed columellar fold.

Mean divergence 50° ; length 1.33 inch; breadth .7 inch; length of aperture .61 inch.

The unique specimen which has served for this description is somewhat faded, and the lip probably is not quite mature, being sharp.

minor *Mighels* and Adams *Cyclas*

Plate 40, fig.1

1842, Boston Jour. Nat. Hist. 4(1): 39, pl. 4, fig. 2.

Weybridge, Vermont.

C. testâ, minimâ, ovatâ, inequilateralî; natibus tumidis, approximatis; marginibus rotundatis; dentibus omnibus fortibus.

Shell very small, ovate, inequilateral, finely striate, shining, horn color, yellowish towards the margin; beaks rather prominent, moderately tumid, not undulate, approximate, situated two-fifths the distance from one extremity to the other; margins rounded, both the cardinal and lateral teeth well developed.

Length, .18 inch; height, .15 inch; width, .11 inch.

Habitat. Found among dead leaves, in a swamp, in Weybridge, Vt., in the spring of 1839. Subsequently it has been found in several other places in the vicinity, and in Portland, Me. It is not confined to the water, but is often found a foot or more from it, burrowing deep in

the mud, and under stones. It is in the Cabinets of the Bost. Soc. Nat. Hist., J. W. Mighels, and C. B. Adams.

modesta Adams Achatinella

Plate 42, fig. 11

1851, Cont. to Conch. no. 8: 128.

Hawaiian Islands.

ACHATINELLA MODESTA. Shell rather thick and short, ovate-conic: dingy reddish or ash brown; more or less covered with a dingy dark brown epidermis: with fine irregular transverse striae, which are coarser on the upper whorls; without spiral striae: apex subacute: spire short, with the outlines quite curvilinear: whorls six, moderately convex, with a well impressed suture; last whorl rather ventricose: aperture ovate, somewhat acute above; lip sharp, not expanded, moderately thickened within; columellar fold well developed, quite oblique.

Mean divergence 50° ; length .54 inch; breadth .3 inch; length of aperture .26 inch.

The corresponding dimensions of another specimen are — 47° ; .55 inch; .29 inch; .24 inch.

Habitat, Sandwich Islands.

nitida Mighels and Adams Cyclas

Plate 40, fig. 2

1842, Boston Jour. Nat. Hist. 4(1): 39–40, pl. 4, fig. 3.

Norway, Maine.

C. testâ sub-ovatâ, inequilateralis; natibus parvis, haud approximatis; dentibus lateralibus fortibus, cardinalibus obsoletis.

Shell sub-ovate, inequilateral, finely striate, shining, horn color, yellowish toward the margin, often blueish on the umbones; beaks small, rather prominent, not undulate, not approximate, situated about two-fifths of the distance from one extremity to the other; inferior margin well rounded, the other margins moderately rounded; cardinal teeth obsolete, lateral teeth well developed.

Length, .3 inch; height, .24 inch; width, .2 inch.

Habitat. We obtained a few specimens of this species at Norway, Oxford Co., Me., in the summer of 1840. It is very rare. It is in the Cabinets of the Bost. Soc. Nat. Hist., J. W. Mighels, and C. B. Adams.

REMARKS. The embryo shell is elliptical, obliquely striate, compressed; is .06 inch long, .05 inch high, and .025 inch wide. It resembles *C. minor*, Nob., but the beaks in these shells are approximate and proportionally larger; this species differs also in having the cardinal teeth obsolete both in the young and mature shell, and it is much larger.

obliquus *Adams Ancylus* Type not located

1851, Cont. to Conch. no. 8: 132.

Jamaica.

Non Broderip 1833. The holotype might be in the Chitty colln. in the British Museum (Nat. Hist.).

ANCYLUS OBLIQUUS. Shell subovate, somewhat arcuate, very convex: translucent, pale horn color: extremely thin, with microscopic radiating raised lines, and less distinct striae of growth: apex very prominent, elevated, extending very far to one side and posteriorly, and projecting nearly over the margin.

Length .075 inch; breadth .05 inch; height .028 inch.

This remarkable shell may belong to a new genus, but without the soft parts, it is difficult to determine the generic value of its peculiarities. The shell is hitherto unique in the rich collection of the Hon. Edward Chitty, to whom I am indebted for the loan of it.

ornata *Adams Neritina* Plate 42, fig. 4

1850, Cont. to Conch. no. 7: 112.

Jamaica.

NERITINA ORNATA. Shell obliquely ellipsoidal: rather pale greenish or livid brown, ornamented with numerous rather small irregular spots of bright red: rather thick and solid, with fine unequal striæ of growth, and crowded microscopic spiral lines: spire small, not very prominent: whorls more than three, with a subcanaliculate suture: labium smooth, obsoletely toothed. Operculum divided into two concave regions by an acute ridge, which is curved in the direction of growth.

Length of spire .07 inch; total length .32 inch; breadth .24 inch.

pallida Adams Limnaea

Plate 42, fig. 1

1840, Boston Jour. Nat. Hist. 3(3): 224-225, pl. 3, fig. 13.

Shoreham, Vermont.

L. testâ ovato-fusiforâ, pallidâ; anfractibus quinque; suturâ impressâ; spirâ conicâ, subacutâ; anfractu postremo producto; aperturâ supernè acutâ, haud magnâ; umbilico parvo.

Shell moderately elongate, ovate-fusiform, very pale horn color, semi-transparent, not very thin, with fine, irregular striæ of growth, without revolving striæ; *whorls* about five and a half, moderately convex; *suture* well impressed; *spire* four-ninths of the length of the shell, acutely conic, its opposite sides containing an angle of about 45°, sub-acute at tip; *body-whorl* not much enlarged, somewhat produced below; *aperture* five-ninths of the length of the shell, sub-ovate acute above, angle of its plane with the axis of the shell about 15°, of its length with the axis about 10°; *labrum* not thickened internally; *fold* of the columella distinct, but not very large; *umbilicus* rather small.

Length, .48 inch; breadth, .22 inch.

Cabinets of the Bost. Soc. Nat. Hist., of Middlebury College; of Dr. A. A. Gould, of Boston; of J. G. Anthony, of Cincinnati; and my own.

Habitat and station. This species was found in considerable numbers at Shoreham, Vt., on the shore of Lake Champlain, clinging to rocks and stones.

REMARKS. This species must resemble *L. acuta*, Lea, of which, however, I have not seen a specimen. That shell, in a very brief description, is said to be delicate, smooth, and dark brown, while this is rather strong striate, and of a very pale horn color, in living specimens, like the weathered shells of kindred species. The figure represents the columella of the *acuta* as intruding upon the aperture, which is not the case with this shell.

pallidus Adams Planorbis

Plate 36, fig. 3

1846, Proc. Boston Soc. Nat. Hist. 2: 102.

Jamaica.

PLANORBIS PALLIDUS. P. t. dextrâ convexâ, apice depressâ, sinistrâ, concavâ; anfractibus vix tribus, ultimo maximo; aperturâ maximâ, transversâ.

Diam. .4; alt. .125 poll. Hab. Jamaica.

plebeius Adams Unio compressus Plate 39, fig. 5

1842, in Thompson, Z., *History of Vermont*, p. 166.

Brook, Middlebury, Vermont.

Unio compressus. — LEA.

DESCRIPTION. Shell oblong-ovate, not thick; epidermis grass-green, or olivaceous, with numerous irregular yellowish rays, with distinct striæ; beaks small, pointed, much wrinkled; discs moderately inflated posteriorly, scarcely convex; anterior side three-sevenths to three-eighths as long as the posterior; hinge margin straight, rising posteriorly into a slightly elevated wing, which is often more or less connate; posterior margin descending obliquely in a straight line to a somewhat rounded truncate extremity; inferior margin somewhat rounded; anterior margin regularly rounded; interior bluish, sometimes tinged with pale brownish yellow; cardinal teeth much compressed, on the left valve deeply and broadly bifid, or even trifid; of the lamellar teeth of the left valve one is very small. Length 2.85 inches; height 1.6 inch; width 0.8 inch.

REMARKS. This species also is found in the western states, and has its eastern limit in the streams west of the Green Mountains. It is much larger in the west.

Var. plebeius. — ADAMS. Epidermis olivaceous, rays obscure; wing scarcely elevated; lamellar teeth very small, with the three divisions of the left cardinal very remote. Length 4.3 inches; height 2.3 inches; width 1.25 inch. This variety is found in a small brook in Middlebury.

pusilla Adams Neritina Plate 39, fig. 2

1850, Cont. to Conch. no. 7: 112.

Jamaica.

NERITINA (?) PUSILLA. Shell transversely ovate: white, translucent: vitreous, smooth and shining: spire scarcely elevated: whorls one and one-half, with an indistinct

suture; last whorl very large, concavely depressed above: aperture very large, semiorbicular: labrum very thin: labium tumid, covered with a large tumid smooth deposit. Obviously this species can scarcely be included in *Neritina*. A considerable number of specimens were obtained, which scarcely differ in size.

Height .04 inch; greatest breadth .068 inch.

Like most of the *Neritinae* of Jamaica, this is strictly a marine shell.

pygmaea Adams Cyclas

Plate 39, fig. 4

1849, Cont. to Conch. no. 3: 44-45.

Jamaica.

CYCLAS PYGMÆA. Shell oval; color* — ?; not very thin proportionately to its size, with microscopic striæ of growth; valves somewhat inequilateral, with a very convex disk; anteriorly short but high and scarcely truncate; posteriorly long but much lower, somewhat tapering to a well rounded extremity; beaks wide, not prominent; cardinal teeth small and lamellar; lateral teeth moderately developed, not remote.

Length .083 inch; height .075 inch; breadth .05 inch.

*I was unable to find any living or fresh specimens.

pygmaea Adams Neritina

Plate 39, fig. 1

1845, Proc. Boston Soc. Nat. Hist. 2: 7-8.

Jamaica.

NERITINA PYGMÆA. N. t. minimâ, tenui, fuscâ, læviusculâ; spirâ vix elevatâ, apice prominulo; anf. 2 1/2; aperturâ expansâ; labro tenui; labio candido, lævi; operculo flavido. Long. .1 poll.; lat. .13 poll.

pygmaea Adams Valvata

Plate 41, fig. 6

1849, Cont. to Conch. no. 3: 42-43.

Jamaica.

VALVATA PYGMÆA. Shell convex above; concave below; color* — ? with fine striæ of growth; spire convex, moderately elevated, apex subacute; whorls three and one-half, with a very deep suture, very accurately rounded

and rather rapidly increasing in diameter, so that the shell resembles an elongated cone wound in a spiral manner; aperture large, with the upper end of the labrum advanced far beyond the lower extremity; umbilicus as wide as the penult whorl. The following are the dimensions of a large specimen.

Greatest breadth .075 inch; least breadth .06 inch; height .03 inch.

*I have not yet obtained any fresh or living specimens.

redfieldi *Adams Planorbis*

Plate 38, fig. 2

1849, Cont. to Conch. no. 3: 43.

Jamaica.

PLANORBIS REDFIELDI. Shell discoidal; horn color; smooth, with a few microscopic interrupted spiral striæ; spire more widely and deeply concave on the left than on the right side; apex visible on both sides; whorls nearly four, wider on the left side, with a well impressed and margined suture on both sides, subplanulate on the left, convex on the right; last whorl spreading much through a regular curve from the right to the left side, where it has a subangular periphery, narrow on the left side; labrum with its right half advanced beyond its left by a space equal to the diameter of the aperture.

Greatest breadth .185 inch; least breadth .16 inch; height of last whorl .065 inch.

reevei *Adams Achatinella*

1851, Cont. to Conch. no. 8: 128.

Hawaiian Islands.

New name for *Achnatinella viridans* Reeve 1850, *non* Mighels 1845.

rivularis *Adams Paludina*

Plate 41, fig. 4

1845, Proc. Boston Soc. Nat. Hist. 2: 17.

Jamaica.

PALUDINA RIVULARIS. P. t. minimâ, lævi, corneâ, elongatâ; spirâ conicâ, acutâ; anf. 6; aperturâ ovatâ. Div. 30°; spiræ long. .07 poll.; long. tot. .11 poll.; lat. .05 poll.

spinifera Adams Melania Plate 42, fig. 5
 1845, Proc. Boston Soc. Nat. Hist. 2: 17.
 Jamaica.

MELANIA SPINIFERA. M. t. minimâ, corneâ; anf. 6, angulatis, angulo spinifero; ultimo subtus striis exilissimis revolventibus insculpto; aperturâ suprâ et infrâ angulatâ. Div. 45° ; spiræ long. .09 poll.; long. tot. .17 poll.; lat. .1 poll.

tappaniana Adams Achatinella Plate 42, fig. 8
 1851, Cont. to Conch. no. 8: 126.
 Hawaiian Islands.

ACHATINELLA TAPPANIANA. Shell reversed, elongate ovate-conic: pure white, with one narrow brown spiral band on the periphery of the last whorl: with very unequal and irregular transverse striae, and numerous excessively minute wrinkled spiral impressed lines: apex subacute: spire elongate, with the outlines a little curvilinear: whorls nearly seven, moderately convex, and more or less subangular, margined above, with a well impressed suture: aperture ovate; lip well thickened within the margin, expanded much anteriorly but not above; columellar fold strong.

Mean divergence 43° ; length 1.06 inch; breadth .55 inch; length of aperture .44 inch.

tappaniana dubosa Adams Achatinella Plate 40, fig. 5
 1851, Cont. to Conch. no. 8: 126.
 Hawaiian Islands.

Var. *dubiosa* differs in being a little more ventricose; its whorls are not margined above, and the brown stripe is replaced by two fine paler brown lines, below which one or two other yet finer lines may be seen.

Habitat, Sandwich Islands.

This beautiful species is named in honor of Hon. Benjamin Tappan, of Ohio.

tappaniana 'Ward' Adams Pupa Plate 42, fig. 12
 1841, Des. of a new species of *Pupa*. [Single page] Middlebury, Vermont; 1842, in Thompson, *Z. History of Vermont*, p. 158.
 Roscoe, Ohio.

Pupa Tappaniana. WARD. Inedit.

DESCRIPTION. Shell very small, pale horn color, translucent, tapering above the penultimate whorl; whorls a little more than five, convex, with a well impressed suture; aperture sub-orbicular, (the penult whorl cutting off about one-third of the circle,) about one-third of the length of the shell; margin sharp, with a narrow contraction in the sub-margin, beneath which is a thickening within, on which are the labial teeth; teeth eight, five primary and three secondary: of the former the largest is on the penultimate whorl, the next largest on the left side of the aperture; at the base, beginning at the left hand, is a primary, then a secondary, a primary, a secondary, a primary, and another secondary, extending nearly to the upper extremity of the right margin: the last three primaries are not constant in size; umbilicus open. Length 0.08 inch; breadth 0.05 inch.

REMARKS. This species is easily distinguished from the preceding by its teeth. [The description follows below.]

Pupa contracta. SAY.

DESCRIPTION. Shell white, ovate, tapering above the body whorl; whorls five, convex, with a well impressed suture; aperture sub-triangular, with the transverse lamina raised, and forming with the labrum a continuous lip, much contracted in the throat, with three teeth, one on the transverse lip, large, prominent, and sinuous, another on the right side, where the throat is most contracted, and the third is merely a convexity caused by the fold of a large umbilicus. Length 0.1 inch; breadth 0.06 inch.

REMARKS. This species is easily recognized by its elevated transverse lip. It is found under wood or stones in moist pastures.

tenebricosa Adams *Neritina*

Plate 42, fig. 3

1851, Cont. to Conch. no. 9: 175.
Jamaica.

NERITINA TENEBRICOSA. Shell obliquely ellipsoidal, rather thin: black, with numerous angular translucent spots of horn color: white on the labium, blue within the aperture: with numerous excessively fine spiral and incremental striæ: apex quite prominent: spire convex: whorls two and one-half, with a very fine but well impressed sutural line: labium smooth, moderately thickened. Inhabits Black River.

Length of spire .06 inch; height .36 inch; breadth .41.

umbilicata Adams *Limnaea*

Plate 41, fig. 2

1840, Boston Jour. Nat. Hist. 3(3): 325-326, pl. 3, fig. 14.

New Bedford, Massachusetts.

L. testâ fuscâ, ovatâ, striis transversis tenuibus, volventibus tenuissimis; anfractibus quinque, convexis; spirâ subacutâ; aperturâ ovatâ, labro intus fusco-marginato, puniceo-albo submarginato; columellâ latè reflexâ, obsoletè plicatâ; umbilico subamplo, haud profundo.

Shell rather strong, brown, ovate, with slight striæ of growth, and more slight numerous, irregular, revolving, impressed lines; *whorls* five, convex; *suture* deeply impressed; *spire* two-fifths of the length of the shell, conic, sub-acute at the apex, angle of its opposite sides about 65° ; *body-whorl* inflated, subglobular; *aperture* ovate, its plane, also the line of its length, at angles of about 15° with the axis of the shell, three-fifths as long as the shell; *labrum* thin, inner margin dark brown, inner sub-margin thickened with a light pink deposit; *columella* strong, reflected and spread over an *umbilicus*, which is rather large but not profound, and formed chiefly by the reflection of the columella; *fold* of the latter inconspicuous.

Length, .28 inch; breadth, .17 inch.

Cabinets of Bost. Soc. Nat. Hist.; of Middlebury College; of Mr. Shiverick; and my own.

Habitat. New Bedford.

REMARKS. For this species I am indebted to Mr. Shiverick, who obtained numerous specimens. It resembles *L. caperatus*, Say; but in Say's species the aperture is but one half the length, the revolving lines are raised, more

distinct, and numerous, the umbilicus is rather less, and there is one more whorl.

virens Adams Planorbis

Plate 38, fig. 3

1840, Boston Jour. Nat. Hist 3(3): 326-327, pl. 3, fig. 15.

New Bedford, Massachusetts.

P. testâ parvâ, viridi, striis transversis crebris, volventibus tenuissimis; anfractibus quatuor; spirâ haud prominente, vix concavâ; anfractu ultimo magno, supernè subplanulato, infernè subcarinato; aperturâ suborbiculari; labro supernè prominente; umbilico sublato, profundo.

Shell small, greenish horn color, with thick, obvious striæ of growth, and very slight revolving lines, with a green, rough epidermis; *whorls* four; *suture* impressed; *spire* not rising above the last whorl, but scarcely falling below it; *last whorl* much larger than the spire, flattened above, then abruptly curving downwards, (in the young shell, at the upper third of the last whorl, is a carina, which is gradually modified into the abrupt curvature, in the progress of growth,) subcarinate below, as are also the preceding whorls; *aperture* nearly orbicular, interrupted by the last whorl in about one-fifth of its circumference, advancing above; *umbilicus* as broad as the last whorl, rather deep, exhibiting all the volutions.

Height (of the last whorl), .09 inch; greatest breadth, .23 inch; least breadth, .18 inch.

Cabinets of the Bost. Soc. Nat. Hist.; of Middlebury College; of Mr. Shiverick; and my own.

Habitat. New Bedford.

REMARKS. For this species I am indebted to Mr. Shiverick. It differs from *P. parvus*, Say, in being much less broadly and more deeply umbilicate beneath; it is also higher. *P. parvus*, also, instead of being subcarinate on the lower side of the whorls, is much flattened. *P. concavus*, Anthony, MSS., resembles this species, but is more regularly convex above and concave beneath.

veatleyi Adams Cyclas

Plate 40, fig. 4

1849, Cont. to Conch. no. 3: 44.

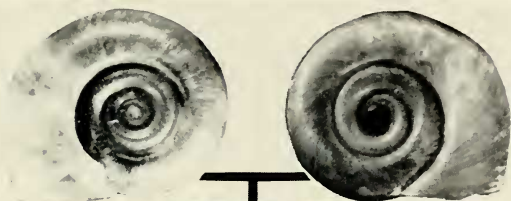
Jamaica.

CYCLAS VEATLEYI. Shell oval; horn color with a tinge of brown; extremely thin, with fine striæ of growth; valves very inequilateral, with a moderately convex disk; anteriorly both short and low, with a well rounded margin; posteriorly very high and subtruncated; beaks small but prominent; cardinal teeth small; lateral teeth moderately developed, somewhat remote. Very rare.

Length .21 inch; height up the middle of the posterior side .15 inch; breadth .105 inch.

Plate 36

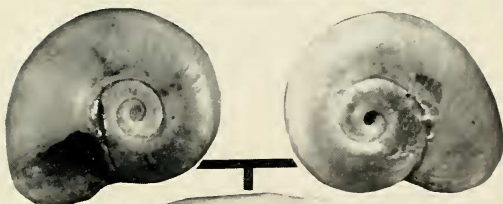
- Fig. 1. *Planorbis affinis* Adams. Kingston [Surrey], Jamaica. Lectotype, here selected, MCZ 186532 (15.7 mm dia \times 5.3 mm ht).
- Fig. 2. *Planorbis macnabianus* Adams. Jamaica. Lectotype, here selected, MCZ 186526 (6.8 mm dia \times 1.1 mm ht).
- Fig. 3. *Planorbis pallidus* Adams. Jamaica. Lectotype, here selected, MCZ 186524 (9.9 mm dia \times 3.5 mm ht).
- Fig. 4. *Planorbis decipiens* Adams. Jamaica. Lectotype, here selected, MCZ 186519 (9.7 mm dia \times 2.7 ht).



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Plate 37

- Fig. 1. *Planorbis elevatus* Adams. Rocky cavity, South Boston [Suffolk Co., Massachusetts]. Lectotype, here selected, MCZ 247685 (3.6 mm dia \times 1.1 mm ht).
- Fig. 2. *Planorbis haldemani* Adams. Jamaica. Lectotype, here selected, MCZ 186528 (3.2 mm dia \times 1.3 mm ht).
- Fig. 3. *Planorbis dentiferus* Adams. Jamaica. Lectotype, here selected, MCZ 186531 (4.5 mm dia \times 1.6 mm ht).

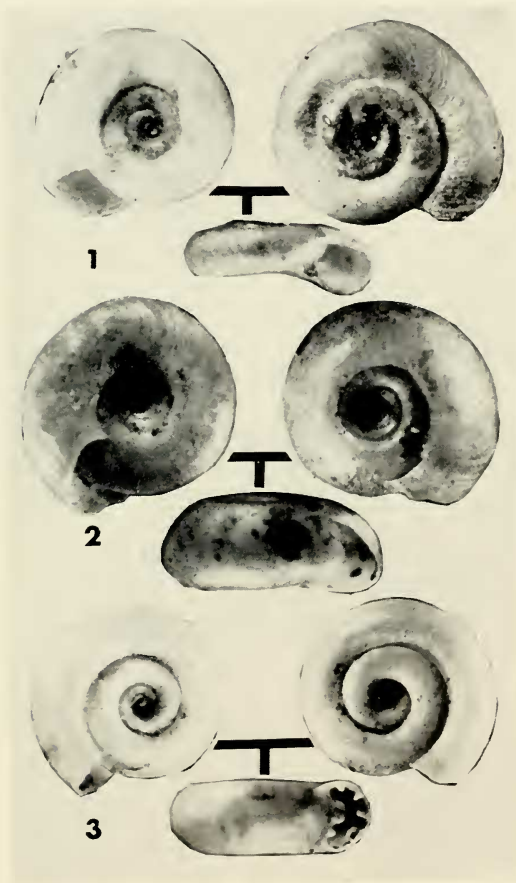


Plate 37

Plate 38

- Fig. 1. *Planorbis dentiferus edentatus* Adams. Hatfield, Westmoreland, Jamaica. Lectotype, here selected, MCZ 186529 (5.4 mm dia \times 1.9 mm ht).
- Fig. 2. *Planorbis redfieldi* Adams. Jamaica. Lectotype, here selected, MCZ 186523 (5.4 mm dia \times 1.5 mm ht).
- Fig. 3. *Planorbis virens* Adams. New Bedford [Bristol Co., Massachusetts]. Lectotype, here selected, MCZ 42068 (2.7 mm dia \times 1 mm ht).
- Fig. 4. *Physa jamaicensis* Adams. Tank at Malvern (Santa Cruz mountains) St. Elizabeth, Jamaica. Lectotype, here selected, MCZ 155985 (9.2 mm ht \times 5.2 mm w).
- Fig. 5. *Limnaea decollata* Mighels and Adams. Unity [Waldo Co.], Maine. Lectotype MCZ 176986 selected by Johnson, 1949, Occ. Papers on Moll., 1: 225, figured by Baker, F. C., 1911, Chicago Acad. Sci., Special Publication no. 3, pl. 41, fig. 8 (16.5 mm ht \times 11.8 mm w).
- Fig. 6. *Physa fragilis* Mighels and Adams. Mill pond, Monmouth [Kennebec Co.], Maine. Lectotype, here selected, MCZ 177004 (14.9 mm ht \times 9.7 mm w).

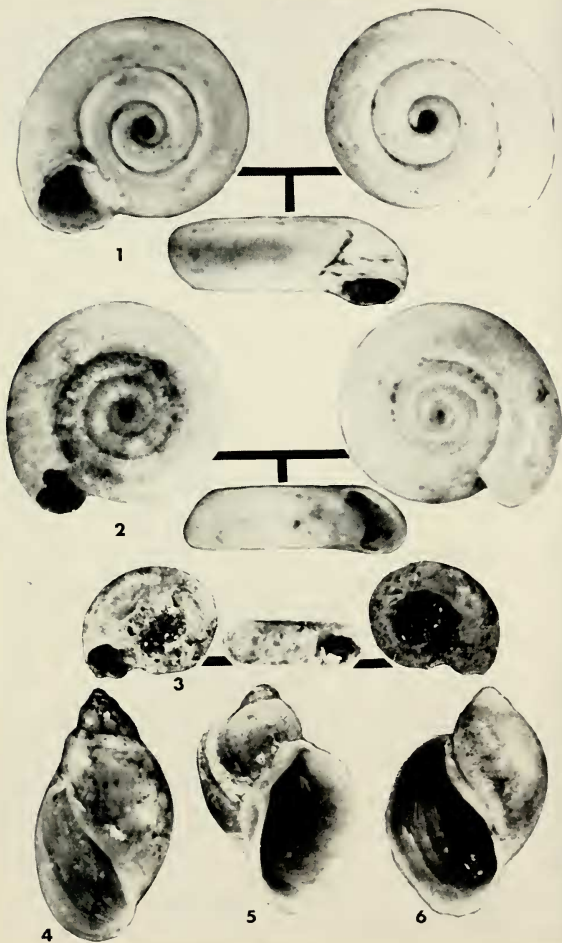


Plate 38

Plate 39

- Fig. 1. *Neritina pygmaea* Adams. Jamaica. Holotype MCZ 156359 (2.2 mm h \times 3.1 mm w).
- Fig. 2. *Neritina* (?) *pusilla* Adams. Jamaica. Lectotype, here selected, MCZ 186117 (1.0 mm ht \times 2.0 mm w).
- Fig. 3. *Ancylus fuscus* Adams. Small rivulet [Merimmac River system] Andover [Essex Co., Massachusetts]. Lectotype, here selected, MCZ 239452 (4.5 mm l).
- Fig. 4. *Cyclas pygmaea* Adams. Jamaica. Lectotype, here selected, MCZ 155588 (2.6 mm l \times 2.0 mm ht \times 0.9 mm hemiwidth); paralectotypes MCZ 19849 in the Prime colln.
- Fig. 5. *Unio compressus plebeius* Adams. Small brook, [St. Lawrence River system] Middlebury [Addison Co., Vermont]. Lectotype MCZ 154361 selected by Johnson, 1956, Bull. Mus. Comp. Zool., 115: 130 (106.4 mm l \times 56.7 mm ht \times 29.3 mm w).



Plate 39

Plate 40

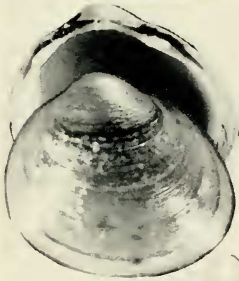
- Fig. 1. *Cyclas minor* Mighels and Adams. Swamp, Weybridge [Addison Co.], Vermont. Lectotype MCZ 19827, selected by Johnson, 1949, Occ. Papers on Moll., 1: 227 (5.7 mm l \times 4.4 ht \times 1.4 mm hemiwidth).
- Fig. 2. *Cyclas nitida* Mighels and Adams. Norway, Oxford Co., Maine. Lectotype MCZ 19783 selected by Johnson, 1949, Occ. Papers on Moll., 1: 227 (6.7 mm l \times 5.9 mm ht \times 4.4 mm w).
- Fig. 3. *Cyclas elegans* Adams. Swamp, Weybridge [Addison Co.], Vermont. Lectotype, here selected, MCZ 136001 (12.1 mm l \times 9.8 mm ht \times 7.8 mm w).
- Fig. 4. *Cyclas veatleyi* Adams. Jamaica. Lectotype, here selected, MCZ 155961 (5.3 mm l \times 3.9 mm ht \times 1.3 mm hemiwidth); paralectotypes MCZ 73920 in the Prime colln.
- Fig. 5. *Achatinella tappaniana dubiosa* Adams. [Maui] Sandwich [Hawaiian] Islands. Holotype MCZ 279303 (20.3 mm ht \times 10.2 mm w).
- Fig. 6. *Partula diminuta* Adams Hab. ? Lectotype, here selected, MCZ 155955 (15.4 ht \times 9 mm w).



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Plate 41

Fig. 1. *Pupa badia* Adams. Crown Point [Essex Co.], New York. Holotype MCZ 247405 (3.5 mm ht \times 1.8 mm w).

Fig. 2. *Limnaca umbilicata* Adams. New Bedford [Bristol Co., Massachusetts]. Lectotype, here selected, MCZ 183700 (5.7 mm ht \times 3.5 mm w).

Fig. 3. *Paludina jamaicensis* Adams. Jamaica. Lectotype, here selected, MCZ 278120 (4.6 mm ht \times 2.4 mm w).

Fig. 4. *Paludina rivularis* Adams. Jamaica. Lectotype, here selected, MCZ 278119 (3.3 mm ht \times 1.6 mm w).

Fig. 5. *Melampus coronatus* Adams. Jamaica. Lectotype, here selected, MCZ 186029 (3.0 mm ht \times 2.0 mm w).

Fig. 6. *Valvata pygmaea* Adams. Jamaica. Lectotype, here selected, MCZ 186088 (1.6 mm dia \times 1.1 mm ht).

Fig. 7. *Valvata inconspicua* Adams. Jamaica. Holotype MCZ 186089 (1.7 mm dia \times 1.5 mm ht).

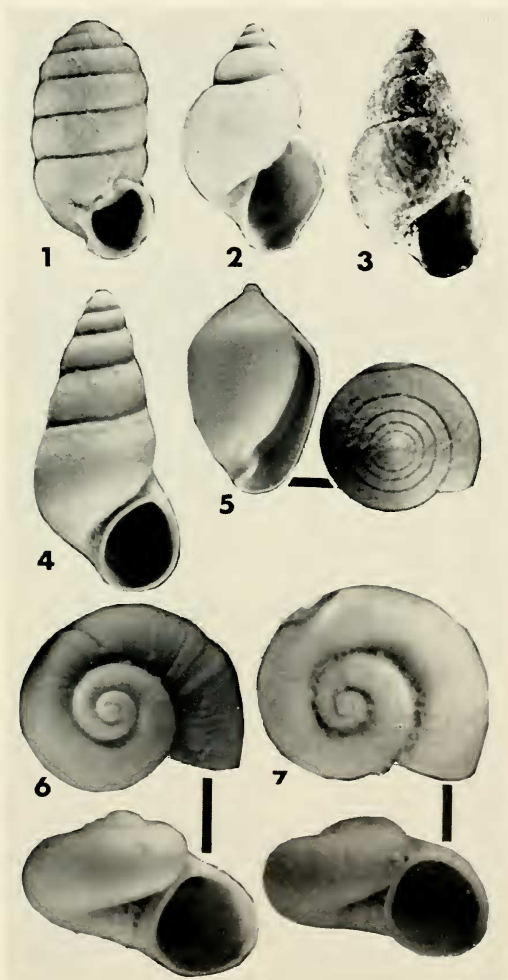


Plate 41

Plate 42

- Fig. 1. *Limnaca pullida* Adams. Lake Champlain, Shoreham [Addison Co.], Vermont. Lectotype, here selected, MCZ 191332 (11.7 mm ht \times 6.6 mm w).
- Fig. 2. *Neritina jamaicensis* Adams. Jamaica. Lectotype, here selected, MCZ 156160 (9.1 mm ht \times 8.4 mm w).
- Fig. 3. *Neritina tenebricosa* Adams. Black River [Cornwall], Jamaica. Lectotype, here selected, MCZ 177032 (9.5 mm ht \times 10.2 mm w).
- Fig. 4. *Neritina ornata* Adams. Jamaica. Holotype MCZ 186128 (6.5 mm ht \times 7.5 mm w).
- Fig. 5. *Melania spinifera* Adams. Jamaica. Lectotype, here selected, MCZ 278118 (3.8 mm ht \times 2.3 mm w).
- Fig. 6. *Achatinella dimondi* Adams. Sandwich [Hawaiian] Islands. Holotype MCZ 155950 (25.0 mm ht \times 12.6 mm w).
- Fig. 7. *Achatinella dimondi lata* Adams. [Oahu] Sandwich [Hawaiian] Islands. Holotype MCZ 155954 (16.5 mm ht \times 12 mm w).
- Fig. 8. *Achatinella tappaniana* Adams. [Maui] Sandwich [Hawaiian] Islands. Holotype MCZ 155949 (26.3 mm ht \times 14.5 mm w).
- Fig. 9. *Achatinella decepta* Adams. [Hawaiian Islands]. Lectotype, here selected, MCZ 156040 (17.2 mm ht \times 8.3 mm w).
- Fig. 10. *Achatinella magna* Adams. [Lanai, Hawaiian Islands]. Holotype MCZ 155953 (33.5 mm ht \times 17.5 mm w).
- Fig. 11. *Achatinella modesta* Adams. Sandwich [Hawaiian] Islands. Lectotype, here selected, MCZ 155951 (15.1 mm ht \times 8.3 mm w).
- Fig. 12. *Pupa tappaniana* 'Ward' Adams. [Roscoe, Coshocton Co., Ohio]. Lectotype, here selected, MCZ 186171 (2.0 mm ht \times 1.2 mm w).

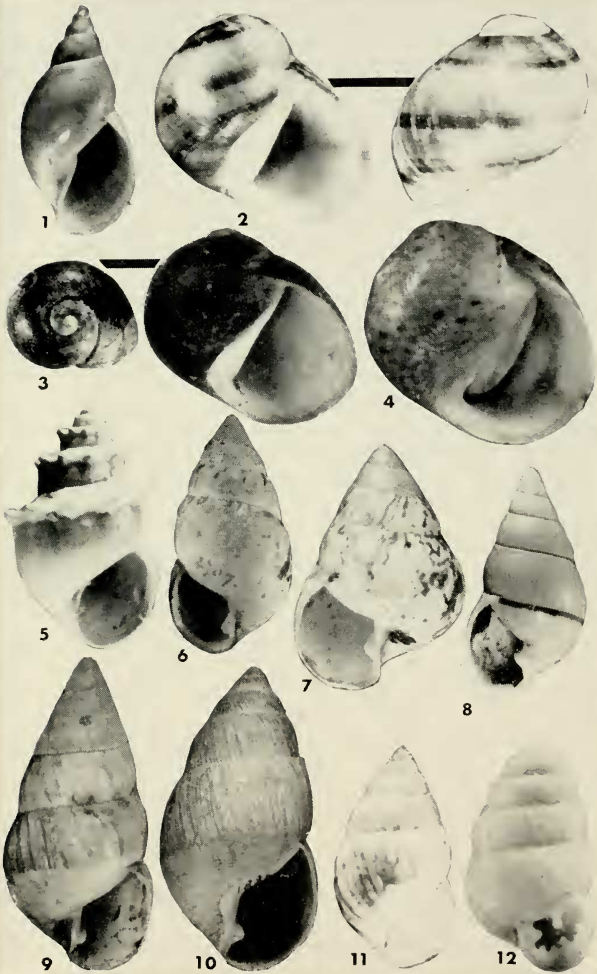


Plate 42